

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte STEVENSON MAREK

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Appeal No. 1996-1655  
Application 08/036,157

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ON BRIEF

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Before BARRETT, FLEMING and FRAHM, Administrative Patent Judges.

FRAHM, Administrative Patent Judge.

DECISION ON APPEAL

Appellant has appealed to the Board from the examiner's final rejection of claims 1 and 3, which constitute all of the pending claims in the case before us on appeal. Claims 2, 4 to 8, and 10 to 12 have been canceled, and claim 9 stands allowed.

### BACKGROUND

The subject matter on appeal is directed to a load beam used in a head suspension assembly attached to a rigid arm, wherein the suspended head is a magnetic head for reading/recording information contained on a rotating magnetic disk. As indicated in the specification (see Figures 1 and 2 and page 2), wires (16) extend down the load beam (10) from a base plate end (the end containing wire support pad 12) to a flexure end (18). Appellant recognizes two difficulties with prior art head suspension assemblies: (1) that the wires and the support pad represent an obstacle to minimizing overall thickness of the assembly, and (2) that the edge of the support pad abrades the insulation of the wires (see specification, page 5). In an effort to keep overall thickness of the head suspension assembly down, and in the recognition that "[w]ire thickness generally represents an obstacle to minimizing assembly thickness" (specification, page 5), appellant provides an assembly with a "support pad partially thinned to a thickness less than the thickness of the load beam" (claim 1 on appeal). In addition, for the purpose of preventing abrasion of wire insulation, appellant provides for a "well radiused convex curvature cross-sectional profile at a perimeter edge of the support pad" (claim 1 on appeal).

Representative independent claim 1 is reproduced below:

1. In a load beam of a given thickness for use in a head suspension assembly for attachment to a rigid actuator arm, a connection wire support pad extending laterally from a longitudinal edge of a base plate of said load beam, for supporting tubeless insulated connection wires along a length of the load beam for connecting a head at a flexure end of the load beam to appropriate circuitry at the rigid actuator arm, said support pad partially thinned to a thickness

less than the thickness of the load beam and including a well-radiused convex curvature cross-sectional profile at a perimeter edge of the support pad to smoothly confront the connection wires and to thereby avoid unwanted abrasion and bending of the wires.

The following references are relied on by the examiner:

Wanlass	4,992,898	Feb. 12, 1991
Hatch et al. (Hatch)	5,282,103	Jan. 25, 1994
		(effectively filed Oct. 7, 1992)

Claims 1 and 3 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the examiner relies upon Hatch or Wanlass.

Rather than repeat the positions of appellant and the examiner, reference is made to the Briefs and the Answer for the respective details thereof.

### OPINION

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would not have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in claims 1 and 3. In reaching our conclusion on the issues raised in this appeal, we have carefully considered appellant's specification and claims, the applied

references, and the respective viewpoints of appellant and the examiner. As a consequence of our review of the record before us, we find that either of the applied references would have taught or suggested the feature of a support pad having a "well-radiused convex curvature cross-sectional profile." However, we find that the applied prior art fails to teach or suggest the feature of representative claim 1 on appeal of a partially thinned support pad.

We find that the applied references to Hatch or Wanlass each fail to individually teach or suggest at least the feature of a load beam of a given thickness having a support pad being partially thinned to a thickness less than the thickness of the load beam, as defined in claims 1 and 3 on appeal. Accordingly, we will reverse the examiner's decision rejecting claims 1 and 3 on appeal as being obvious under 35 U.S.C. § 103.

The examiner admits that "Hatch et al '103 and Wanlass '898 do not expressly show the support pad partially thinned to a thickness less than the thickness of the load beam" (Answer, page 4), and then asserts that to thin the support pad of either Hatch or Wanlass would have been obvious. The examiner's reasoning for making this modification to the references is that the artisan would have found it obvious to do so "as a means of optimizing the space taken up by the load arm and reducing the overall size of the disk drive" (Answer, page 5). In response, appellant rebuts by arguing that "[t]here is no motivation or suggestion in either reference to partially thin the pad" as claimed (Reply Brief, page

5).

Our careful review of the record before us leads us to the conclusion that neither reference provides sufficient motivation for making such a modification to the support pad of the load beam (i.e., thinning). We find that the references actually teach away from thinning the support pad,

since both Hatch and Wanlass are concerned with providing stiffness and support at the base plate end and flexibility at the flexure end which contains the head, while reducing the overall height of the head assembly by using a load beam and inverted support pad of unitary thickness in combination with a separate support or mounting plate to provide stiffness.

We find that Wanlass does not teach or suggest thinning the support pad, and that to do so would not have been obvious in light of the teachings or reasonable suggestions of the reference. Figures 5 and 6 of the reference, relied upon by the examiner, do not show this feature. The examiner admits that this feature is not shown in Wanlass, and states that it would have been obvious without pointing to any portion of Wanlass to support such a conclusion. We find that there is no reasonable teaching or suggestion in Wanlass which would have led the artisan to thin the load beam support pad in

order to reduce overall height of the assembly.

Our close review of the Wanlass reference reveals instead that Wanlass' main purpose was to reduce overall height by employing reversed or inverted spaced load rails and wire clamps 54 (analogous to appellant's "support pad") which assist in maintaining stiffness of the load beam (see Wanlass, column 4, lines 49 to 54). Wanlass nowhere suggests that the load beam be thinned at the support pad in order to reduce overall height. Instead, Wanlass uses a mounting support piece 30 which is welded or bonded to the load beam 40 at interface 50. Thus, the clamps 54 in Wanlass are made to be the same thickness as the load beam (see Figures 2 and 4), and height is reduced by inverting the clamps 54 around the wire as shown in Figures 6 and 7. Therefore, Wanlass has no need for thinning the support pads (54) in order to reduce thickness since the problem has been overcome in a different manner. We note that the only thinning possibly shown in Wanlass is in the direction of the axis of the load beam 40, where wire clamp 54 is indented (see indent shown at number 76 in Figure 8). However, this thinning would be in a "width" direction and not a "thickness" direction as set forth in the claims on appeal.

We also agree with appellant (Brief, page 7) that although Hatch teaches thinning of the flexure end of the load beam, Hatch fails to teach or suggest thinning the support pad which is not in contact with the head. We agree with appellant (Brief, page 7) that Hatch does not teach or suggest thinning portions of the load beam other than the flexure end for any other purpose. As discussed above with

respect to Wanlass, Hatch (see Figures 3, 4, and 5) teaches a stiffening plate (46) which is separate from the load beam (10) and bonded together at boss (48) wherein the support pad portion (54) has a cross-sectional profile as shown in Figure 5B. Accordingly, Hatch, like Wanlass, teaches away from the invention in that Hatch reduces overall assembly height by forming an inverted flange 54 to protect the wires 92.

Representative claim 1 calls for a load beam which is integral with a thinned wire support pad at a base plate end. Both Hatch and Wanlass pertain to load beams having the same thickness as the wire support pad, and use a separate stiffening plate or mounting section to secure the load beam to an arm of the head assembly. The examiner has presented no plausible motivation from the references as to why it would have been obvious to thin the load beam at the wire support

pad. Thus, we are in agreement with appellant that "[t]here is no motivation or suggestion in either reference to partially thin the pad" as claimed (Reply Brief, page 5), and we cannot sustain the examiner's rejection under 35 U.S.C. § 103.

We agree with the examiner that both Hatch and Wanlass teach the recited feature of the support pad having a "well-radiused convex curvature cross-sectional profile." We agree with examiner's argument (Answer, pages 5 to 6) that although the support pad perimeter portion of

appellants' disclosure (see edge 24 of support pad 22 in appellant's Figures 3 and 4) is not exactly the same as the perimeter portion taught by the references (see Hatch's Figure 5B and Wanlass' Figures 6 and 7), the references teach what is actually claimed. Claim 1 on appeal broadly requires that the support pad have a certain edge profile, a "well-radiused convex curvature cross-sectional profile," and the claim does not specify which edge (the edge running the length of the load beam, or the edge 24 disclosed by appellant). Claim 1 does not require that the support pad edge having the recited profile be "perpendicular" to the axis corresponding to the length of the load beam.

In summary, although we agree with the examiner that the applied references would have taught or suggested a support pad having a "well-radiused convex curvature cross-sectional profile," we must agree with appellant that the recited feature of a load beam having a support

pad which is partially thinned is neither taught nor would have been suggested by the applied references. Accordingly, the decision of the examiner rejecting claims 1 and 3 under 35 U.S.C. § 103 is reversed.

REVERSED



Appeal No. 1996-1655  
Application 08/036,157

LEE E. BARRETT  
Administrative Patent Judge

MICHAEL R. FLEMING  
Administrative Patent Judge

ERIC FRAHM  
Administrative Patent Judge

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